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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,034	01/25/2002	Kenichi Oishi	461-76	8940

7590

09/11/2003

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EXAMINER

DONOVAN, LINCOLN D

ART UNIT PAPER NUMBER

2832

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,034

Applicant(s)

OISHI ET AL.

Examiner

Lincoln Donovan

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 6-7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claimed invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, line 18, applicant should define what "R" is relative to.

Applicant has not defined d_1 or d_0 . It is not clear what parameters applicant is intending to define. In line 26, applicant should clarify the specific housing portion intended by d_1 .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, as best understood in view of the rejections made under 35 USC 112, second paragraph, is rejected under 35 U.S.C. 103(a) as being unpatentable over Carrillo et al. [US 6,543,744] in view of Phelan [US 4,399,483].

Carrillo et al. disclose an electromagnetic device comprising :

- a movable core [64];
- a stator [44] for housing the movable core in such a manner as to move in a reciprocating fashion therein and an attracting portion between which and the movable core a magnetic force is generated for attracting the movable core to one of reciprocating movement directions and cooperating with the movable core to form a magnetic circuit;
- a coil [40] for generating a magnetic force which attracts the movable core to the attracting portion side when energized;
- a non-magnetic layer [52] formed on at least one of sides where the housing portion and the movable core are situated, respectively, to diametrically face each other; and
- a coaxial air gap [86, figure 3] formed between the movable core and stator.

Carrillo et al. disclose the instant claimed invention except for the electric current application to the coil being based on the saturation level of the plunger.

Phelan discloses a circuit for controlling an electromagnetic device such that the current supplied to the coil reaches a saturation point of the magnetic circuit [abstract].

It would have been obvious to a person having ordinary skill in the art at the time invention was made to include a control circuit with the electromagnetic device of Carrillo et al., as suggested by Phelan, for the purpose of providing control of the plunger operation.

The specific range of saturation current necessary would be dependent upon the materials used for the circuit and the size of the winding.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carrillo et al. in view of Phelan, as applied to claim 1 above, and further in view of Jabcon [US 6,405,757].

Carrillo et al. disclose the instant claimed invention except for the thickness of the non-magnetic layer being between 40 and 80 micrometers.

Regarding claims 2 and 4, Jabcon discloses a stainless steel non-magnetic layer [42] interposed between a plunger and 26] and stator assembly [figure 4] having a thickness between 40 and 80 micrometers [column 6, lines 41-58].

It would have been obvious to a person having ordinary skill in the art at the time invention was made to use the thickness of Jabcon for the magnetic layer of Carrillo et al., as modified, for the purpose of permitting free armature movement while minimizing magnetic losses.

Regarding claims 3 and 5, stainless steel has a hardness between HV200 and HV300.

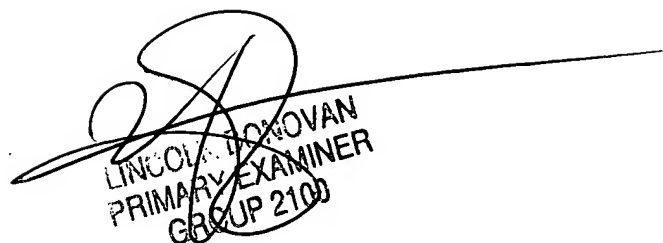
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lincoln Donovan whose telephone number is 703 308-3111. The examiner can normally be reached on M-F 8:30-5:00.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1920.

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Art Unit: 2832

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ldd
August 18, 2003


LINCOLN DONOVAN
PRIMARY EXAMINER
GROUP 2100